

**REMARKS**

The Office Action mailed November 4, 2011 has been reviewed and carefully considered. No new matter has been added.

Claims 33, 35, and 36 have been amended. New Claims 37-39 have been added. Claims 1-39 are pending.

As per the rejection headings in the pending Office Action, the following rejections have been asserted by the Examiner. Claims 1, 11-12, and 17 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No. 2004/0179596 to Song et al. (hereinafter "Song"). Claims 2, 13-16, 18, and 29-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of U.S. Patent Publication No. 2002/0136297 to Shimada et al. (hereinafter "Shimada"). Claims 3-5 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of U.S. Patent Publication No. 2003/0128756 to Oktem (hereinafter "Oktem"). Claims 6-10 and 22-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of U.S. Patent Publication No. 2006/0171454 to Jung (hereinafter "Jung").

As per the specific claims mentioned under the rejection headings in the pending Office Action, noting that such claims do not in all cases match the claims actually specified in the rejection headings, the following rejections have been asserted by the Examiner. Claims 1, 3-5, 11-12, 17, 27-28, and 33-36 stand rejected under 35 U.S.C. 102(e) as being anticipated by Song. Claims 2, 13-16, 18-21, and 29-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of Shimada. Claims 3-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of Oktem. Claims 6-10 and 22-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Song in view of Jung. The rejections are respectfully traversed.

Hence, as is readily evident from the preceding two paragraphs, the Office Action is inconsistent in rejecting the pending claims of the instant application. Nonetheless, in order to

expedite prosecution, Applicants have fully responded to the pending Office Action, despite the aforementioned inconsistencies.

The independent claims currently pending are Claims 1, 17, and 33.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 1:

means for generating a quantization parameter (QP) estimate for the macroblocks of an image frame; and  
means for selection of a frame level QP for the image frame, using mode of QP estimates for the macroblocks,  
wherein the QP estimates for the macroblocks and the frame level QP for the image frame respectively correspond to variables used to scale transform coefficient levels.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 17:

generating a quantization parameter (QP) estimate for the macroblocks of an image frame; and  
selecting a frame level QP for the image frame, using mode of QP estimates for the macroblocks,  
wherein the QP estimates for the macroblocks and the frame level QP for the image frame respectively correspond to variables used to scale transform coefficient levels.

Further, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 33:

A video encoder for encoding image frames that are divisible into macroblocks comprising a quantizer for generating a quantization parameter (QP) estimate for the macroblocks of an image frame and for selection of a frame level QP for the image frame, using mode of QP estimates for the macroblocks, wherein the QP estimates for the macroblocks and the frame level QP for the image frame respectively correspond to variables used to scale transform coefficient levels.

Against the previous limitations of Claims 1, 17, and 33 directed to selection of a frame level QP for the image frame, using mode of QP estimates for the macroblocks, the Examiner cited the following portions of Song: “Figure 3 element 340; paragraph [0037] lines 1-6” (see, e.g., Office Action, pp. 3-4). We respectfully disagree with the Examiner’s reading of Song.

Paragraph [0037] of Song is reproduced in its entirety (inclusive of lines 1-6) as follows:

The QP decision unit 340 decides a quantization parameter for each picture, on the basis of the average complexities  $X_{Iavg}$ ,  $X_{Pavg}$ , and  $X_{Bavg}$  for each picture, average remaining bit amounts  $R_{Irem\_avg}$ ,  $R_{Prem\_avg}$ , and  $R_{Brem\_avg}$  for each picture, and the minimum quantization parameter  $QP_{min}$ , input from the complexity calculator 310, the remaining bit amount calculator 320, and the minimum QP setting unit 330.

Hence, as is evident, paragraph [0037] of Song completely fails to teach or even remotely suggest selection of a frame level QP for the image frame, *using mode of QP estimates for the macroblocks* as essentially recited in Claims 1, 17, and 33. For example, paragraph [0037] does not mention or even remotely connote “mode” or a similar concept, let alone “mode of QP estimates for the macroblocks”. For example, a picture type (e.g., I, P, or B) is clearly not a mode, but rather is just that, namely a “picture type”. Moreover, as is readily evident to one of ordinary skill in the art, none of average complexities, average remaining bit amounts, and a minimum QP correspond to a

mode of QP estimates as recited in Claims 1, 17, and 33. Further, we note that these Claims recite in plural form, QP estimates, while a minimum QP as disclosed in Song is a single value. Lastly, we respectfully point out that the entire disclosure of Song fails to include even one occurrence of the word “mode” or a similar concept, let alone “mode of QP estimates for the macroblocks”, as explicitly recited in Claims 1, 17, and 33.

Hence, Song does not teach or suggest all the above reproduced limitations of Claims 1, 17, and 33. Moreover, we note that remaining references do not cure the deficiencies of Song, and are silent regarding the above reproduced limitations of Claims 1, 17, and 33.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP §2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the “consideration” of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely “consider” each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make “a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art.” See *In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is

nonobvious” (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Since the Examiner has not shown all of the claimed elements to be taught, suggested, described, or otherwise disclosed in any combination of the cited references, a *prima facie* rejection has not properly been made.

Hence, Claims 1, 17, and 33 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above.

Claims 2-16 and 34 directly or indirectly depend from Claim 1, and thus include all the limitations of Claim 1. Claims 18-32 and 35 directly or indirectly depend from Claim 17, and thus include all the limitations of Claim 17. Claim 36 directly depends from Claim 3, and thus includes all the limitations of Claim 33. Accordingly, Claims 2-16 and 18-32 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 1, Claims 18-32 and 35 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 17, and Claim 36 is patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 33.

Moreover, said dependent claims include patentable subject matter in and of themselves and are, thus, patentable distinct and non-obvious over the cited references in their own right. For example, none of the cited references, either taken singly or in any combination, teach or suggest the following limitations of Claims 5 and 21: “wherein said macroblock QP calculator adjusts the individual macroblock QPs ...to achieve lower mean square errors for the Inter-coded pictures than for the Intra-coded pictures.”

The Examiner cited column [0037], lines 1-6 of Song as disclosing the preceding limitations of Claims 5 and 21. We respectfully disagree. For example, mean square error does not occur even once in Song, or any variation thereof, let alone the remaining limitations

corresponding thereto recited in Claims 5 and 21. It appears the Examiner is using the same reasoning as per the prior application of Shimada against these claims. However, such reasoning is not even remotely supported by paragraph [0037] of Song as reproduced in full above. Thus, Song does not teach or suggest all of the preceding limitations of Claims 5 and 21. Moreover, the remaining references do not cure the deficiencies of Song, and are silent regarding the same.

Reconsideration of the rejections is respectfully requested.

Moreover, as noted above, new Claims 37-39 have been added. Support for the same may be found at least at page 12, lines 7-18 of the instant specification as filed.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 37: “wherein said means for selection of the frame level QP for the image frame uses the mode of a histogram of quantization step sizes for the macroblocks, the quantization step sizes being determined based on the QP estimates for the macroblocks”.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 38: “wherein said step of selecting the frame level QP for the image frame uses the mode of a histogram of quantization step sizes for the macroblocks, the quantization step sizes being determined based on the QP estimates for the macroblocks”.

Further, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest all of the following limitations recited in Claim 39: “wherein said quantizer performs the selection of the frame level QP for the image frame using the mode of a histogram of quantization step sizes for the macroblocks, the quantization step sizes being determined based on the QP estimates for the macroblocks.”

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Rather, all of the cited references are silent regarding the same.

In view of the foregoing, Applicants respectfully request that the rejections of the claims set forth in the Office Action of November 4, 2011 be withdrawn, that the pending claims be allowed, and that the case proceed to early issuance of Letters Patent in due course.

The Director is hereby authorized to charge the excess claim fee of \$180 applicants' Deposit Account No. 07-0832. It is believed that no further additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicants' Deposit Account No. 07-0832.

Respectfully submitted,

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